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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,047	10/25/2000	Volker Schumacher	48985	9171

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EXAMINER

MEDINA SANABRIA, MARIBEL

ART UNIT PAPER NUMBER

1754

DATE MAILED: 04/03/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

49-6

<b>Office Action Summary</b>	Application No. 09/674,047	Applicant(s) SCHUMACHER ET AL.	
	Examiner Maribel Medina	Art Unit 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 October 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

#### **Specification**

1. The abstract of the disclosure is objected to because it is written in two paragraphs.

Correction is required. See MPEP § 608.01(b).

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

#### **Claim Rejections - 35 USC § 112**

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. Regarding claims 11 and 16, the phrase "can be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention or if they are optional.

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b. Claims 11 and 16 recites the limitation "the mixture". There is insufficient antecedent basis for this limitation in the claim.

c. Regarding claims 14 and 15, the phrase "if desired" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention or if they are optional

### **Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 11-12, 14-15, 16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,973,457 (Kongshaug et al).

Kongshaug et al disclose a reactor for the catalytic oxidation of ammonia to nitrogen oxides comprising; a catalyst package comprising noble metal gauze, which usually comprises several noble metal gauzes and recovery gauzes for noble metal; and a heat exchanger (See col. 2, lines 36-40). In regards to the limitation of claim 11, that reads "and has a catalyst for the decomposition of N<sub>2</sub>O" Kongshaug et al discloses that a metal or metal oxide catalyst which selectively decomposes N<sub>2</sub>O after the catalyst package can be installed (See col. 3, lines 10-14). In regards to the limitation of claim 11 that reads "which can be prepared by combining...", has not been considered, since it is not clear if this limitation is required by the apparatus.

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In regards to calim12, Kongshaug et al clearly discloses the use of a noble metal recovery gauze right after the noble metal gauze catalyst (See col. 2, lines 36-40). In regards to claims 14-15, it is disclosed in col. 3, line 34, the use of an adsorption tower after the heat recovery unit.

In regards to claim 16, the Kongshaug et al disclose a process for the catalytic decomposition of  $N_2O$  in a gas obtained in the preparation of nitric acid by catalytic (See col. 1, lines 6-23) oxidation of ammonia in a reactor as described above. In regards to claim 18, it is disclosed that the ammonia decomposition is effected at temperatures from 1100 K (837°C) to 1161 K (888°C) ( See Table 1) and pressure of 5 bars (See col. 3, line 65).

No difference is seen between the instantly claimed invention and Kongshaug et al invention.

### **Claim Rejections - 35 USC § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kongshaug et al.

Kongshaug et al apply herein as above. In regards to claim 13, Kongshaug et al fail to disclose the height of the  $N_2O$  decomposition catalyst. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined by

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experimentation the height of this catalyst in such as in the range from 2 to 50 cm, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

In regards to claim 17, Kongshaug et al disclose a residence time in the range from 0.1 to 3 seconds for the N<sub>2</sub>O decomposition, when no N<sub>2</sub>O decomposition catalyst is used (See col. 4, lines 63-68). Kongshaug et al fail to disclose a residence time of less than 0.1s. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a residence time of less than 0.1 s, when a N<sub>2</sub>O catalyst is used, since in col.3, lines 10-14, it is disclosed that "in order to reduce the residence time for the N<sub>2</sub>O decomposition catalyst, a metal or metal oxide catalysts...can be installed". This clearly implies that the residence time will be lower than when no decomposition catalyst is used, a residence time value less than the 0.1 s

9. The following rejection will apply if claims 11 and 16 are amended to include the limitation that reads "which can be prepared by combining Cu Al<sub>2</sub>O<sub>4</sub> with tin, lead and/or an element of main group II or transition group II of the Periodic Table of the Elements as oxide or salt or in elemental form and subsequently calcining the mixture at from 300 to 1300°C and a pressure in the range from 0.1 to 200 bar".

10. Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kongshaug et al in view of US 5,587,135 (Fetzer et al).

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Kongshaug et al disclose a reactor for the catalytic oxidation of ammonia to nitrogen oxides comprising; a catalyst package comprising noble metal gauze, which usually comprises several noble metal gauzes and recovery gauzes for noble metal; and a heat exchanger (See col. 2, lines 36-40). In regards to the limitation of claim 11, that reads "and has a catalyst for the decomposition of  $N_2O$ " Kongshaug et al discloses that a metal or metal oxide catalyst which selectively decomposes  $N_2O$  after the catalyst package can be installed (See col. 3, lines 10-14).

In regards to claim 12, Kongshaug et al clearly discloses the use of a noble metal recovery gauze right after the noble metal gauze catalyst (See col. 2, lines 36-40). In regards to claims 14-15, it is disclosed in col. 3, line 34, the use of an adsorption tower after the heat recovery unit.

In regards to claim 16, the Kongshaug et al disclose a process for the catalytic decomposition of  $N_2O$  in a gas obtained in the preparation of nitric acid by catalytic (See col. 1, lines 6-23) oxidation of ammonia in a reactor as described above. In regards to claim 18, it is disclosed that the ammonia decomposition is effected at temperatures from 1100 K (837°C) to 1161 K (888°C) ( See Table 1) and pressure of 5 bars (See col. 3, line 65).

Kongshaug et al fail to disclose the  $N_2O$  decomposition catalyst used and how it is prepared.

Fetzer et al disclose a  $N_2O$  decomposition catalyst prepared by combining  $Cu Al_2O_4$  with tin, lead and/or an element of main group II or transition group II of the Periodic Table of the Elements as oxide or salt or in elemental form and subsequently calcining the mixture at from 300 to 1300°C and a pressure in the range from 0.1 to 200 bar (See claim 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the catalyst disclosed by Fetzer et al in the process and reactor of Kongshaug et al, since Kongshaug

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et al disclose that any known  $N_2O$  decomposition can be used and since Fetzer et al catalyst can be used in for the decomposition of  $N_2O$ .

In regards to claim 13, Kongshaug et al fail to disclose the height of the  $N_2O$  decomposition catalyst. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined by experimentation the height of this catalyst in such as in the range from 2 to 50 cm, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

In regards to claim 17, Kongshaug et al disclose a residence time in the range from 0.1 to 3 second for the  $N_2O$  decomposition, when no  $N_2O$  decomposition catalyst is used (See col. 4, lines 63-68). Kongshaug et al fail to disclose a residence time of less than 0.1s. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a residence time of less than 0.1 s, when a  $N_2O$  catalyst is used, since in col.3, lines 10-14, it is disclosed that "in order to reduce the residence time for the  $N_2O$  decomposition catalyst, a metal or metal oxide catalysts...can be installed". This clearly implies that the residence time will be lower than when no decomposition catalyst is used, a residence time value less than the 0.1 s

### **Conclusion**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner Maribel Medina. The examiner can normally be reached on Monday through Friday from 9:00 AM to 5:30 PM. Any inquiry of a general nature



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or relating to the status of this application or proceeding should be directed to the receptionist


whose telephone number is 703-308-0661.

**Examiner: Maribel Medina** 

**Tel: 703-305-1928**

**Fax: 703-872-9310**

**April 1, 2002**

  
**STEVEN P. GRIFFIN**  
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